

SHORT COMMUNICATION

LEVERAGING CLINICAL PHARMACY EXPERTISE FOR PEDIATRIC CARDIOLOGY IN LOW AND MIDDLE-INCOME COUNTRY**Aniqa Batool¹, Sumbul Shamim², Muhammad Mohsin¹**¹National Institute of Cardiovascular Diseases (NICVD), Karachi, Pakistan, ²Dow University of Health Sciences (DUHS), Karachi, Pakistan

Pharmacists are universally regarded as an integral component in the therapeutic prescription, particularly within the realm in pediatric population. As the drastic increase in prevalence of cardiovascular diseases in pediatrics in Pakistan harness numerous opportunities for pharmacists to involve in clinical activities such as, to evaluate treatment regimens, therapeutic monitoring, adverse event monitoring, counseling and intervene as needed appropriately in collaboration with physician to facilitate high care to pediatric patients. However, a comprehensive literature review underscores the dearth of such patient-centered practice in Pakistan in public-health sector specially. In this commentary, we accentuate the indispensable involvement of pharmacist in pediatric cardiac unit of public-sector in low and middle income country to optimized pediatric patients care.

Keywords: Pharmacist; Clinical pharmacy; Pediatric Cardiology

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INTRODUCTION

The American College of Cardiology (ACC) endorses the involvement of clinical pharmacist in the premises of cardiovascular disease management for their valuable contribution in both inpatient and ambulatory settings. Furthermore the American College of Clinical Pharmacy (ACCP) defines the clinical pharmacy services as health sciences discipline in which pharmacist deliver patient-centered care to enhance health, prevent and manage disease.¹ Moreover the American society of health-system pharmacist (ASHP) delineates the pharmacist clinical role as, in appropriate selection of therapeutic agent, minimizing side effect, increasing medication adherence, decreasing duration of treatment, lowering the cost of regimen, involving in pharmacogenomics guided therapy and tele-health services towards improved clinical outcomes.^{2,3}

Impacts on practice: Clinical pharmacist operations within resource-limited low and middle income country (LMIC) for the enthusiastic adaptation of a pediatric patient-centered care.

Aims and objectives: In this commentary our focus is;

- To emphasize on the importance of pharmacist involvement in the clinical activities in pediatric cardiac public health sector in Pakistan.
- To foster the pharmacist academic standards and practices.
- To specify the treatment prescription regimen to improve cardiac pediatric population care in Pakistan.

Clinical pharmacist services on a global scale:

Pharmacists are involved in providing drug information related to medicines management, preparation, compounding, and dispensing of medicines, counseling of patients and formulating pharmaceutical care plan for patients and intervene as needed appropriately.⁴ Pharmacists work in collaboration with physician to facilitate high care to patients by providing education to physician about the established guidelines, therapeutic monitoring, adverse event monitoring, and rational use of medications including antimicrobial stewardship program.⁵⁻⁷

Global Pharmacist excellence: elevating pediatric-cardiac patient care: The Pharmacist participation in mitigating drug related problems

including (inappropriate drug, sub therapeutic dose, food-drug and drug-drug interaction, short duration of treatment regimen, unavailability of prescribed medicines and wrong dose and frequency of drug, duplication of therapeutic group) has successfully discernible positive impact in pediatric cardiology patient's clinical outcome.⁸

Pharmacists play pivotal role in huge spectrum of cardiovascular services in pediatric patients encompassing arrhythmia management, heart failure care, management of hypertension, anti-coagulation clinics, comprehensive handling of Kawasaki disease in collaboration with physician and expansion of pharmacist role in extracorporeal cardiopulmonary resuscitation in optimizing medication strategy during pediatric cardiac arrest.⁹⁻¹²

In realm of pediatric cardiac surgeries pharmacist hold a distinctive position in preoperative to post-operative care by the development of meticulously designed, efficient, and safe utilization protocols.¹⁰ And the implementation of pharmacist-led discharge medication counseling resulted in noteworthy improvement in medication adherence, minimizing medication discrepancies, and lower the number the hospital readmission linked to cardiovascular linked to cardiac problem in pediatric population.¹³

Clinical services by Pharmacist in Pakistan: A systemic review study revealed that pharmacist is involve in disease related education, life style modification, patient counseling, medication therapy management, glycemic control, lipid control, renal function, high alert medication monitoring but these practices are not properly functioning all over the country, and in addition to this pharmacist involvement also unveiled the irrational prescription of antibiotics exceeded to more than 50% in pediatric public sector hospital while in private sector this tendency was observed to 50%.^{11,14} Furthermore regrettably, no data regarding the monitoring of narrow therapeutic drugs within pediatric cardiac public sector of Pakistan facilities is available, with the exception of vancomycin monitoring.¹⁵

Pharmacist clinical access constraints in Pakistan: Clinical pharmacy practices as a health-care profession in Pakistan is still harder to be established at government level.¹⁶⁻¹⁸ Recently, it has been observed that this profession is gradually growing in Pakistan in private set-up.¹⁹⁻²¹ However despite this improvement, the precise role of pharmacist as

healthcare profession in Pakistan is still challenging. Within the sphere of pediatric cardiac setting, a notable scarcity of substantial data prevails in Pakistan, illuminating the comprehensive elucidation of the pivotal role and engagement of pharmacist in clinical activities.

DISCUSSION

Globally Clinical pharmacist practitioners function as indispensable team members in healthcare setting to facilitate the health outcome with acute and chronic ailment.²² Clinical pharmacist has a significant role in both inpatient and ambulatory care setting, where they have a considerable impact on various aspects. This influence primarily stems from their expertise in optimizing drug usage, preventing adverse effects, and engaging in transitional care duties, with a particular emphasis on medication reconciliation and patient education.¹

Clinical pharmacist role is not adequately integrated as a healthcare practitioner especially in pediatric cardiac public health sector in (LMIC) consequences in inappropriate use of medications. However, this lack of pharmacy practices contributes to the rise in prevalence of medication error, adverse drug events and irrational prescribing.²³

Challenges to clinical pharmacy practices in Pakistan: In Pakistan, major challenges are: doctors consider pharmacist mainly as, dispenser, chemist and drug provider only. Pharmacist' role as educator and drug information specialist is accepted by only a part of doctors' community. Further, a vast majority of the doctors also show reservations about pharmacists' intervention in prescriptions and their active participation in pharmacotherapy plans. The reasons they think in this way are the lack of specialized certified clinical pharmacists. This is further exacerbated by the service orientation of a pharmacist more towards hospital pharmacy operational tasks including inventory management, supply and procurement, rather than patient-centric care. In addition to this another big issue is the lack of interest of pharmacist in clinical pharmacy research on biomedical sciences, pharmacogenomics, behavioral sciences, and clinical trials.²⁴

As, the clinical pharmacy profession encounters multiple obstacles such as the (i) scarcity of trained human resources, (ii) conventional pharmacy academic curriculum and (iii) limited job

opportunities at government level, therefore, it is much needed to aware people about pharmacists' practices by conducting educational trainings, webinar sessions, and symposiums to enlighten the clinical pharmacist role in Pakistan. In addition to this, pharmacist should undergo rigorous and constant trainings, refresher courses, CME seminars etc. to update pharmacists' knowledge coupled with current technological demands attaining a high level of education to provide expert services with utmost proficiency in specialized fields.

The pediatric population necessitates specialized attention to ensure optimal care as per recent Pakistani data is that in our region, the incidence rate stands at 4 per 1000 live births. Therefore, it is imperative that pharmacist working in pediatric settings undergo comprehensive and up-to-date training, possessing a high level of education, in order to deliver proficient services in this field. Regrettably, in Pakistan, the establishment of specialty pharmacy residency programs remains lacking. Consequently, there is a dearth of well-trained cardiac pharmacists or pediatric pharmacists practicing in the pediatric public health sector, hindering the provision of elevated patient care to the community. In this commentary our focus is to emphasize on the importance of pharmacist involvement in the clinical activities in pediatric cardiac public health sector in Pakistan.

CONCLUSION

The modest endeavors of pharmacist, particularly in the realm of antibiotic prescription within the public health sector, have yielded remarkable improvements in best practices. However, envisioning the presence of specialized pediatric cardiac pharmacists or pediatric pharmacists engaged in comprehensive clinical practice promises to bring about a profound transformation in patient's well-being, akin to the advancements witnessed in developed countries. By optimizing care through expertise, these specialized pharmacists would undoubtedly elevate the standards of healthcare and positively impact patient outcomes.

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AUTHORS' CONTRIBUTION

AB, SS, and MM: Concept and design, data acquisition, interpretation, drafting, final approval, and agree to be accountable for all aspects of the work

Address for Correspondence:

Aniqa Batool, Pharmacist, National Institute of Cardiovascular Diseases (NICVD), Karachi, Pakistan.
Email: aniqabatool46@gmail.com

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